

REMARKS

The applicants appreciate the Examiner's thorough examination of the application and request reexamination and reconsideration of the application in view of the applicants' amendments and the following remarks.

Preliminarily, the applicants note that claim 1 has been amended to correct what amounts to a typographical error, namely, to state that the seal layer is "between said separator layer and said distributor [not distribution] plate".

The Examiner rejects claims 16 and 34 under 35 U.S.C. §112, 2nd paragraph, stating that these claims are indefinite because they contain the trademark/trade name Union Carbide Grafoil®.

Claims 16 and 34 as amended describe the type of material claimed by the inclusion of the subject trademark, and the amendments are supported by the applicants' specification. At page 8, lines 20-22 of the specification it states that "seal layer 18 can be made of any suitable sealing material such as a sheet of flexible graphite such as Union Carbide Grafoil®".

The presence of a trademark or trade name in a claim is not, *per se*, improper under 35 U.S.C. §112, 2nd paragraph. See MPEP §2173.05(u). Also, MPEP §608.01(v) states in pertinent part that:

...if the product to which the trademark refers is set forth in such language that its identity is clear, the examiners are authorized to permit the use of the trademark if it is distinguished from common descriptive nouns by capitalization. If the trademark has a fixed and definite meaning, it constitutes sufficient identification unless some physical or chemical characteristic of the article or material is involved in the invention. In that event, as also in those cases where the trademark has no fixed and definite meaning, identification by scientific or other explanatory language is necessary. (With emphasis added.)

In this instance, the applicants submit that they have clearly identified the trademark and

have added language to include the characteristics of the product. Thus, the claims are not indefinite. Accordingly, the applicants request that the Examiner withdraw the rejections of claims 16 and 34.

The Examiner rejects claims 1-9, 11-14, 19, 20, 22-27, 29-32, 35, 37, 38 and 40 under 35 U.S.C. §102(e) as being anticipated by U.S. Pat. No. 6,322,919 to *Yang et al.*

The applicant's claim 1 recites a multipart separator plate for a fuel cell comprising a distributor plate for directing fluid flow, a frame surrounding said distributor plate, an impervious separator layer, and a seal layer between said separator layer and said distributor plate. Each claimed multipart separator plate (22) is adjacent to a membrane electrode assembly (12), as is shown in the applicant's Fig. 1.

In contrast, *Yang et al.*'s combination of a separator plate (62), coolant plate (64), bipolar plate (12) and frame (14) does not include the applicant's claimed seal layer. Instead of a seal layer, *Yang et al.* discloses a cooling plate that includes "fuel manifolds, oxidant manifolds, coolant manifolds, and assembly apertures that correspond to those of the exemplary bipolar plate assembly". See column 5, lines 42-45.

Also, *Yang et al.*'s layering does not equate to or anticipate the applicant's claimed invention. To the extent that the Examiner takes the position that *Yang et al.*'s coolant plate (64) is allegedly a seal layer, a position the applicants traverse, *Yang et al.* does not disclose a multipart separator plate at all. In contrast to the applicant's claimed invention, *Yang et al.* instead discloses a fuel cell module including only a (singular) bipolar plate (12) between each membrane electrode assembly (66), with a (singular) separator plate (62) only between each fuel cell module. See, e.g., *Yang et al.* Fig. 4 and column 5 lines 25-32. To further emphasize the contrast, *Yang et al.* discloses that "[t]he bottom bipolar plate assembly 10 will typically rest

upon the separator plate of an adjacent fuel cell module in a multi-module stack”. See column 5, lines 29-32. In other words, the bipolar plate assembly of *Yang et al.*, which includes bipolar plate (12) and frame (14), typically does not include coolant plate (64) between the bipolar plate (12) and the separator plate (62). It is only in the context of the entire fuel cell module that there is a coolant layer between the bipolar plate assembly and the separator plate that separates one fuel cell module from another. In other words, as stated, *Yang et al.* does not disclose a multipart separator plate at all, but rather a fuel cell module.

The applicants’ independent claims 22 and 40 claim a multipart separator plate including the elements of a distributor plate, a frame, an impervious separator layer, and a seal layer, as well as other elements. Accordingly, *Yang et al.* not disclose each and every element of the applicant’s independent claims 1, 22, and 40, and thus those claims are in condition for allowance. Claims 2-9, 11-14, 19, and 20 depend from claim 1, and thus are also in condition for allowance. Claims 23-27, 29-32, 35, 37 and 38 depend from claim 22, and thus are also in condition for allowance.

The Examiner also rejects claims 1-7, 13-14, 22-25, 31, 32, 35, 36 and 40 under 35 U.S.C. §102(e) as being anticipated by U.S. Pub. No. 2001/0049044 to *Molter*.

As noted above, the applicant’s claim 1 recites a multipart separator plate for a fuel cell comprising a distributor plate for directing fluid flow, a frame surrounding said distributor plate, an impervious separator layer, and a seal layer between said separator layer and said distributor plate, with each claimed multipart separator plate (22) is adjacent to a membrane electrode assembly (12), as is shown in the applicant’s Fig. 1.

In contrast to the applicant’s claimed invention, *Molter* does not disclose a multipart separator plate at all. Instead, *Molter* discloses a “low-cost” bipolar plate assembly comprising

at least one foil sheet having flow fields thereon, and an electrochemical stack. See paragraphs 0011 and 0012.

In contrast to the applicant's claimed invention, the bipolar plate assembly of *Molter*, see Fig. 2, does not disclose an impervious separator layer or a frame surrounding a distributor plate. The electrode supports (32) disclosed by *Molter* are not impervious separator layers but are "any porous medium", and the oxygen and coolant passages (41, 43) do not include frames. See Fig. 2 and paragraph 0025.

The electrochemical stack of *Molter* does not disclose a frame surrounding the bipolar plates. *Molter* discloses a bipolar plate (31 and/or 33) between each membrane electrode assembly (7/8/3), and the bipolar plates do not include a frame. See, e.g., Fig. 3 of *Molter*. To further emphasize the contrast, there is an end plate (50) (only) between each cell. *Molter* discloses that "[i]n a cell stack, instead of end plate 50, the bipolar plate 31 for the subsequent cell would be disposed in contact with the gasket 38". See the last sentence of paragraph 0029 and Fig. 3. Similarly, the gasket (38) adjacent the end plate (50) in the cell stack is only adjacent the end plate which only occurs between each cell. In other words, as stated, *Molter* does not disclose a multipart separator plate at all but rather, in this embodiment, an electrochemical cell stack.

The applicants' independent claims 22 and 40 for a multipart separator plate include the elements of a distributor plate, a frame, an impervious separator layer, and a seal layer, as well as other elements. Accordingly, *Molter* does not disclose each and every element of the applicant's independent claims 1, 22 and 40, and thus those claims are in condition for allowance. Claims 2-7 and 13-14 ultimately depend from claim 1, and thus are also in condition for allowance. Claims 23-25, 31, 32, 35 and 36 ultimately depend from claim 22, and thus are also in condition

for allowance.

Additionally, the Examiner rejects claims 10 and 28 under 35 U.S.C. §103(a) as being unpatentable over *Yang et al.* in view of U.S. Patent No. 6,436,567 to *Saito et al.* Claims 10 and 28 ultimately depend from independent claims 1 and 22, respectively, that include the aforementioned elements that are novel and non-obvious over the cited references, and thus these claims are also in condition for allowance for at least that reason.

The Examiner also rejects claims 21 and 39 under 35 U.S.C. §103(a) as being unpatentable over *Yang et al.* in view of U.S. Patent No. 6,322,919 to *Wilson*. However, claim 21 ultimately depends from independent claim 1 and claim 39 ultimately depends from independent claim 22. Accordingly, claims 21 and 39 are in condition for allowance for at least that reason.

The Examiner also rejects claims 15, 21, 33 and 39 under 35 U.S.C. §103(a) as being unpatentable over *Molter* in view of U.S. Patent No. 6,322,919 to *Wilson*. However, claims 15 and 21 ultimately depend from independent claim 1 and claims 33 and 39 ultimately depend from independent claim 22. Accordingly, claims 15, 21, 33 and 39 are in condition for allowance for at least that reason.

The Examiner objects to claims 17 and 18 under 35 C.F.R. §1.75(c) as being of improper dependent form. Claims 17 and 18 as amended are in proper dependent form. The applicants therefore request that the Examiner withdraw this objection.

New claim 41 includes the further element not disclosed or taught by the cited references, namely, a flexible seal layer between the separator layer and the distribution plate.

New claim 42 includes the further element not disclosed or taught by the cited references, namely, a sliding seal layer between the separator layer and the distribution plate.

New claim 43 includes elements not disclosed or taught by the cited references. New claim 43 recites a multipart separator plate for a fuel cell comprising a porous graphite distributor plate for directing fluid flow, a plastic frame surrounding the distributor plate, a stainless steel separator layer, and a sheet of flexible graphite forming a seal layer between the separator layer and the distributor plate.

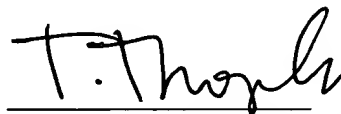
New claim 44 also includes elements not disclosed or taught by the cited references including first and second multipart separator plates adjacent each side of a membrane electrode assembly.

CONCLUSION

Each of Examiner's rejections has been addressed or traversed. Accordingly, it is respectfully submitted that claims 1-40, and new claims 41-44, are in condition for allowance. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned or his associates, collect in Waltham, Massachusetts at (781) 890-5678.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "T. Thompson, Jr.", written over a horizontal line.

Thomas E. Thompson, Jr.
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